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Social Impact Bond Feasibility Study of APAC Portugal

Reducing Recidivism by
Increasing Ex-Convicts' Employability

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Abstract: The Portuguese penitentiary system struggles to prevent recidivism, which results in the increasingly financially unsustainable hyper-incarceration. Therefore, the Free Works Social Impact Bond (SIB) addressing the causes of recidivism instead of symptoms represents an innovative, cost-efficient solution for authorities and investors. APAC Portugal's program is a preventive, holistic model improving ex-convict's employability, enabling them to break the vicious crime cycle. It provides repayments of 1,322,371.16€ and a 1.3% IRR, given the intervention's 7.5% reduction in reconviction events. If the suggested improvements regarding recidivism data and the program's impact are implemented, it is highly recommended to realize the Free Works SIB.

Keywords: Impact Investments, Social Impact Bond, Feasibility Study, Recidivism, Employability of Ex-Convicts

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Table of Abbreviations

APAC	Association for the Protection and Assistance of Convicts (Portuguese: Associação de Proteção e apoio ao Condenado)
DGRSP	General Directorate of Reintegration and Prisons (Portuguese: Direção-Geral de Reinserção e Serviços Prisionais)
DMAIS	Sport and Mathematics Applied to Social Inclusion Program (Portuguese: Desporto e Matemática Aplicada à Inclusão Social)
EP	Prison facility (Portuguese: Estabelecimentos prisionais)
EtiPac	Personal Ethics and Community Reception Program (Portuguese: Programa Ética Pessoal e Acolhimento Comunitário)
PSI	Portugal Social Innovation (Portuguese: Portugal Inovação Social)
PSM	Propensity Score Matching
RHI	Improbable Human Relations Program (Portuguese: Relações Humanas Improváveis)
SIB	Social Impact Bond
UN	United Nations
WHO	World Health Organization

1 Introduction

The imprisonment rate continues to increase inexorably, leading to hyper-incarceration in Europe. This is not merely a result of rising crime levels. Approximately two-thirds of the increase is attributable to custodial sentences' higher use (Cunneen et al. 2013). However, prisons fail to promote desistance among offenders. In any year, one-fifth of all criminal acts are committed by former inmates (Petersilia 2011). Therefore, hyper-incarceration becomes increasingly financially unsustainable while risking social cohesion (McLaughlin et al. 2016). The persistence of recidivism combined with rising governmental budget pressure and citizen's call for outcome-based control have made SIBs increasingly attractive. The innovative financing tool focuses on preventing social problems such as recidivism. Even if public agencies could afford to enlarge prisons, preventive recidivism programs represent a more cost-efficient solution. As a result, 138 impact bonds have been established worldwide, thereof twelve in criminal justice (Social Finance 2019). In Portugal, twelve SIBs have been funded by Portugal Social Innovation (PSI), a public initiative financing social innovation. Among them is the criminal justice SIB called Breaking Bars Farm. It aims to promote recidivism through social and labor integration (PSI 2020a). The Free Works program of APAC Portugal focuses on a similar rehabilitation approach in the Lisbon area, which aligns with Portugal's public priority themes (PSI 2018). As PSI was recently searching for SIBs in the Lisbon area with a three million Euro allocation, this thesis will analyze the following research question:

Is a SIB a feasible financing form for the Free Works intervention tackling recidivism?

2 Methodology

The feasibility study is structured into the following areas: 1) Definition of SIBs, 2) Portuguese penitentiary system, driving factors and effects of criminal recidivism, 3) Proposed intervention model Free Works, 4) Structure of the Free Works SIB, and 5) Scenario analysis.

A combination of academic papers on risk factors and costs of recidivism as well as reports from Portuguese and European agencies was used to assess the Portuguese penitentiary system and its current approach to prevent recidivism. As Portuguese official sources do not publish critical indicators such as recidivism rate or costs per offender, European sources were crucial for the whole thesis. Finally, a dynamic Excel model with Free Work SIB's business case and various scenarios was created to determine if a SIB is feasible to fund the Free Works program. Throughout the thesis development, the researcher had mentoring sessions with Prof. António Miguel and Inês Charro (4 meetings) and contact with APAC Portugal (4 meetings). Especially with the head of the social impact area, Catarina Medeiros, and Free Work's program lead, Inês Tavares, a collaborative relationship was developed over the semester. As a result, the researcher could validate Free Work as an effective intervention model to reduce recidivism.

3 Social Impact Bonds

SIBs are private-public financing models aimed at solving complex and costly social issues from an outcome-orientated perspective. They consist of contracts between the government, intermediary, service provider, and investors. The latter can encompass senior and subordinate lenders and grant-makers, which are not repaid regardless of the results. Investors provide investment up-front to fund preventive social programs targeting education, employment, healthcare, justice, social protection, or inclusion. The intermediary collects these funds, arranges a payment-by-results contract with public authorities, and manages the service provider. The latter then delivers its innovative, field-proven program to a target population. If the intervention reduces social challenges sustainably, which is determined by an evaluator, the government saves costs spent on the problems. As a result, a proportion of the savings can be repaid to the investors. However, if pre-determined result targets are not met, the investors

lose the funds invested. As the government merely pays for the intervention's success, SIBs are also known as Pay for Success Bonds (Marks and Weaver 2017; Klaassen 2017; Warner 2013).

3.1 Advantages

Due to its structure, SIBs encompass six critical advantages for the stakeholders mentioned: access to private capital to fund preventive interventions, risk transfer to investors, accelerated adoption of innovative programs, payment triggered by outcomes instead of activities, quality control, and investors' ability to diversify portfolios while improving their reputation.

Firstly, public authorities often underinvest prevention-focused social programs and pay for more costly remediation of the problem later. This primarily affects poor, underserved societal groups such as homeless, formerly incarcerated, and un- or undereducated persons lacking visibility and representation in the political system (Warner 2013). However, due to the high savings potential of preventive programs for the public, SIBs can pay a return if result targets are met without generating additional costs for public agencies. Therefore, private investors can be attracted to finance social interventions with a social and financial return and risk levels comparable to equity investments. As a result, SIBs can expand social service funding and improve societal outcomes on a large scale (Davies 2014; Marks and Weaver 2017).

Secondly, as the government only pays for the intervention's success, the risks and costs of paying for ineffective services, budget management, and implementation are being transferred to private investors. SIBs should only be used when success is not sure, and thus risks can be transferred (Warner 2013). However, risk transfer is not the primary driver of governmental involvement. The possibility to circumvent strict budgets, procurement and political processes is a more critical factor (Gustafsson-Wright, Gardiner, and Putcha 2015).

Thirdly, as a result of the risk transfer, SIBs encourage a culture of experimentation and innovation. It accelerates the learning rate, which programs improve social outcomes most

effectively due to the continuous, thorough performance evaluation. Therefore, public policy reflecting these learnings can be implemented quicker and on a broader scale (Liebman 2011).
Fourthly, SIBs shift the focus to measurable outcomes instead of inputs or outputs. By clearly defining result targets, and implementing performance management, the stakeholders have goal clarity, simplifying their complex arrangements (Warner 2013).
Fifthly, as the investors and intermediary bear the failure risk, they have strong incentives to monitor and improve program quality before and throughout the intervention period. Moreover, private investors can contribute their business expertise (Davies 2014).
Finally, investors can diversify their portfolio with a new asset class independent of the bond and equity markets while improving their reputation. Additionally, investors can utilize a tax benefit from investing in SIBs in Portugal. Under Law No. 114/2017, 130 percent of the investment can be recognized as an expense regardless of future payments (PSI 2019).

3.2 Disadvantages

Nevertheless, SIBs have essential drawbacks, namely several obstacles to attract private capital, the risk of cherry-picking target population, high complexity, and transaction costs.
Firstly, due to investors' high risk and relatively illiquid investment, SIBs have been unable to attract private capital from investors not primarily interested in social returns without substantial guarantees by a subordinate lender or grant-maker (Davies 2014; Warner 2013). For example, Goldman Sachs only invested in Riker Island's SIB with the guarantee for 7.2 out of 9.6 million US dollar investment from philanthropies (Olson and Phillips 2013).
Secondly, the outcome focus creates adverse incentives for service providers to cherry-pick populations similar to other payment by result approaches. This means that participants with a higher chance of achieving pre-determined outcomes are prioritized over other participants,

which are ignored by the service provider. Moreover, the intervention could also over-focus on the outcome metric resulting in adverse effects for the population (Disley et al. 2016; 2011).

Thirdly, SIBs are highly complex. To align goals, monitor performance management, limit risk, and conduct evaluation, SIBs rely on contracts to manage the complex partner relationships accordingly. Therefore, setting SIBs up is a complicated, time-consuming process involving high transaction costs (Gustafsson-Wright, Gardiner, and Putcha 2015).

Nevertheless, SIBs tackling these drawbacks, by for example limiting the incentive for cherry-picking, offer a win-win situation for public authorities and investors. By combining social outcomes with financial returns, performance management, and outcome-based payments, SIBs promote investment in cost-saving preventive programs (Liebman 2011).

4 Social Problem of Recidivism

4.1 Penitentiary System in Portugal And Its Limitations to Prevent Recidivism

Portugal currently has 12,793 inmates supervised by the General Directorate of Reintegration and Prisons (DGRSP). Its 51 incarceration facilities (EPs) are structured into three different types: central (sentences of over six months), regional (sentences of under six months), and special prisons (e.g., juveniles, officers, or invalids) (Dores, Pontes, and Loureiro 2019).

The Portuguese penitentiary system has three main improvement areas. Firstly, overcrowding in prisons, meaning that the number of inmates exceeds the available incarceration places, has been a problem since 1985 (Prison Project 2016). Despite measures aimed at reducing prison population such as amnesties, pardons, overstating official capacity of prisons, and increased use of non-custodial sentences, Portugal exceeded the European average for prison population rate per 100,000 inhabitants (125.2) and prison population density (93.6%) last year (DGRSP 2019a). Over half of all prison facilities still exceed their limit of detention places, with occupation rates of up to 161.9% (see Appendix 1). This is partly attributable to the high

average length of imprisonment of 31.7 months (Europe: 8 months; Council of Europe 2020) and presumably the high number of reoffenders populating Portugal's EPs (UN 2018).

Secondly, the increasing number of inmates combined with the lack of financial funding compromises health care, sufficient food quantity, and quality in prisons (Cotrim 2017).

Thirdly, prisons face power problems and missing standardization between different institutions (Dores, Pontes, and Loureiro 2019). The damaging effects of the guard's power on inmates' education and professional training will be explained in the intervention model.

As a result of overcrowding, inadequate prison conditions, and power problems, reintegration measures, e.g., individual rehabilitation plans, education, professional training, and employment, cannot be implemented effectively. This stands in contrast to the Portuguese penal system's rehabilitation orientation besides serving incapacitation and deterrence functions[1] (Law No. 115/2009, Decree-Law No. 265/79). It recognizes social reintegration as the core purpose of imprisonment, which is in line with Portugal's priority policy themes, international human rights, and the United Nations' (UN) prison standards (UN 2018).

However, this poses the question if prisons are effective rehabilitative institutions. Current research shows that custodial sentences do not reduce recidivism more than community sentences and, on the contrary, can have criminogenic effects for low-risk offenders in particular. Incarceration shapes the offender's attitudes towards violence, crime, identity, and peer networks, which are at risk of being radicalized (Cullen, Jonson, and Nagin 2011; McLaughlin et al. 2016). According to the experimental study from MacKenzie (2012), which assigned convicts randomly to either a prison or boot camp, both sanction types did not improve the criminogenic characteristics of inmates. In contrast, prisons had a crime-inducing impact

[1] Incapacitation states that the offender cannot commit crimes while in detention. Deterrence refers to the notion that detention will stop offenders from committing further crimes due to the fear of detention (Maltz 2001).

on the offender due to lacking rehabilitation programs, a hostile social learning environment created by interactions with other inmates, and poor living conditions. The latter can especially have a dehumanizing effect on inmates and lead to resentment towards society, resulting in an increasing amount or severity of recidivism (Katz, Levitt, and Shustorovich 2003).

Recidivism, also used as a measure of correctional effectiveness, refers to a person's relapse into criminal acts (measured by, e.g., self-report, rearrest, reconviction, or reimprisonment)[2] after receiving sanction for a prior offense (Jehle and Albrecht 2014). Even though most offenders intend to desist from crime (Shapland and Bottoms 2011), 75% of former inmates reoffend within five years, according to European statistics (Monteiro 2019). Recently released inmates are a high-risk group causing the majority of violent crimes. As a result, 43% are being reincarcerated within three years in the US, causing the well-known problem of the prison system's revolving door (Pew Center 2011; Yukhnenko, Sridhar, and Fazel 2019).

To efficiently tackle recidivism and the resulting revolving door of prisons, the following sections will analyze the static and dynamic risk factors of reoffending.

4.2 Risk Factors For Recidivism

A person's relapse into crime depends on multiple variables. Following the UN's definition, this section is divided into dynamic (meaning amendable to change) and static risk factors.

Firstly, static risk factors encompass demographic and crime-related characteristics influencing recidivism rates. Gender and age belong to the former category. Current research shows that women are less likely to reoffend by 2.5 times (Jehle and Albrecht 2014). Moreover, most persons desist from crime when reaching their early thirties (Sapouna et al. 2015). Furthermore, crime-related characteristics include previous criminal history (80% of first-time offenders will not relapse into criminal acts), offense type, and sentence length (Jehle and Albrecht 2014).

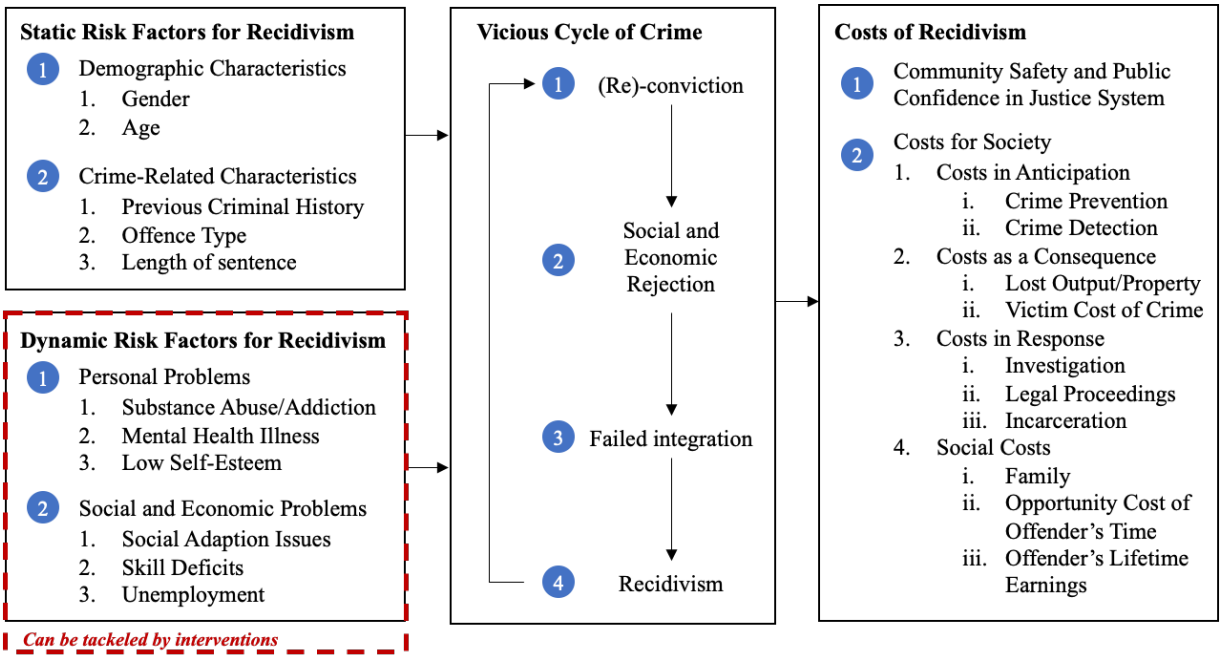
[2] In Portugal, the legal term "recidivist" refers to reimprisonment of at least six months (Law No. 59/2007).

Secondly, dynamic risk factors can be divided into personal and social/economic problems. Personal problems such as substance addiction and mental health illness are widespread in the prison population and can cause higher recidivism rates (Petersilia 2011; Pew Center 2011). However, self-esteem and motivation to change promote successful desistance (Wilson and Lanskey 2015). Moreover, offenders face social stigmatizations and ostracism when returning to society. Negative public attitudes towards ex-convicts obstruct the person's social and professional integration. Quality social networks formed through family, partners and stable employment can facilitate inclusion and reduce reoffending (Shapland and Bottoms 2011).

Recidivism is also negatively impacted by interpersonal, professional, and formal skill deficits. Educational illiteracy is widespread in Portuguese prisons, with over half of inmates lacking primary education (DGRSP 2019b). Therefore, education and vocational training as a central element of rehabilitation can encourage desistance by enabling stable employment after release (Nally et al. 2014). Finding employment is an essential objective for former inmates, with 79% spending time searching for a job after their release (Visher, Debus, and Yahner 2008). However, their unemployment rate is approximately five times higher compared to the general population. Even if formerly incarcerated persons are employed, it is mostly in insecure, low paying jobs that put them below the poverty line (Couloute and Kopf 2018; US Bureau of Labor Statistics 2019). This results from stigmatization, weaker social networks, skill deficits, legal exclusion from certain professions, and a criminal record. The latter is a significant barrier to employment, as most employers are not willing to consider equally qualified applicants due to their criminal history. As a result, the callback ratio is 2:1 or 3:1 for persons without and with a criminal record for white and black, respectively (Pager 2003). Nevertheless, post-release stable employment is the most critical predictor of recidivism regardless of the offense type. Besides providing a secure income source, employment offers stability, structure, and a sense of responsibility for ex-convicts struggling to reintegrate. Therefore, addressing their

skills and thus employment status is crucial for promoting their reintegration, desistance from crime, and thereby public safety at large (Visher, Debus, and Yahner 2008; Nally et al. 2014). Unless the described dynamic risk factors are addressed, formerly incarcerated persons are at risk of being trapped in a vicious cycle between (re-)conviction, social and economic rejection, failed integration, and recidivism (see Figure 1).

Figure 1: Risk Factors, Resulting Vicious Cycle of Crime, and Costs of Recidivism



Source: Own figure based on Cohen and Piquero (2009), Jehle and Albrecht (2014), McLaughlin et al (2016), Nally et al. (2014), Newton et al. (2019), Pager (2003), Penal Reform International (2018), UN (2018), Visher, Debus and Yahner (2008), and Wilson and Lanskey (2015)

4.3 Costs of Recidivism

Two areas are impacted by recidivism: public safety and socioeconomic costs for society. Firstly, recidivism creates more crime jeopardizing community safety and public confidence in the justice system (UN 2018; WHO 2014).

Secondly, society's costs can amount to 4.2 to 7.2 million US dollars per high-risk juvenile, who becomes a chronic offender (Cohen and Piquero 2009). To understand which major cost categories regarding recidivism can cause such high community costs, a distinction is made between costs in anticipation, as a consequence, in response to crime, and social costs.

Costs in anticipation of crime are spent to limit an individual or businesses' chance of becoming a victim, e.g., insurances, crime prevention, and defensive equipment (Newton et al. 2019).

Additionally, costs as a consequence of crime encompass direct costs to individuals or businesses incurred because of the crime committed. It includes the value of the stolen property, lost effectiveness at work, and victim cost of crime, e.g., psychological and physical harm, which needs to be treated by health service (Heeks et al. 2018; UN 2018).

Furthermore, costs as a response to crime are associated with criminal justice investigations, arrests, legal proceedings, and incarceration. In Portugal, 44.9€ are spent per day for the detention of one inmate. In total, this sums up to an estimated budget of approximately 216 million € for all inmates (Council of Europe 2020). However, the budget does not cover costs regarding investigations, prosecutions, and legal proceedings.

In addition to the described direct costs of crime, there are also indirect social costs for the community stemming from imprisoning offenders. It is estimated that the ratio between incarceration and social costs is 1:10, which are most likely to be borne by families, children, and the convict's social networks, which did not offend (McLaughlin et al. 2016). Due to the convict's absence, families suffer from higher evictions (resulting from the income loss), weakened health, and adverse effects on the children's mental health, welfare costs (if placed in foster care), education, subsequent wages, homelessness, and criminality. It is estimated that seven out of ten children do not break the crime cycle (Inácio 2019; Cunneen et al. 2013).

Furthermore, social welfare is also impacted by the opportunity cost of offenders' time (foregone wages), reduced lifetime earnings due to lower wages after imprisonment, and ex-inmates' dependence on social services (McLaughlin et al. 2016; Cohen and Piquero 2009).

Although most of the mentioned costs are not included in government budgets, their impact on society's aggregate welfare should be considered when creating public policy.

5 A Successful Intervention Model

5.1 Social Organization: APAC Portugal

APAC Portugal strives to break the vicious cycle of crime and promote desistance with its rehabilitation programs. In 2019, the not-for-profit association supported 98 inmates in seven programs from three EPs. The revolutionary APAC concept from Brazil inspired the social organization. It aims to de-stigmatize and rehabilitate convicts by improving their social thinking, community involvement, skills, and responsibility. For example, APAC's prisons are administrated by its inmates. As a result, the recidivism rate is merely 15 percent compared to a national average of 80 to 85 percent. While humanizing prisons, APAC also reduced incarceration costs by two-thirds (Wilson and Lanskey 2015; Justice Trends Magazine, n.d.). Following APAC's methodology, APAC Portugal has eight core values ranging from human valuation to education (see Appendix 2). Based on these pillars, five rehabilitation programs for inmates have been developed: DMAIS, RHI, EtiPac, Labora, and Free Works, which all focus on different aspects to tackle recidivism. This paper will focus on the latter program.

5.2 Intervention Program: Free Works

Free Works aims to promote social inclusion by addressing the inmate's professional skills and employability. Its three-step program is a cost-effective method to prevent recidivism. It includes 120 hours of training in the 18 months program inside and outside of the EP Caxias. The three phases of Free Works are called Ignite, Master It, and Free Works. Ignite is a 2-month training of soft skills with volunteers inside of the EP. As over half of the Portuguese prison population did not finish their basic education[3] (DGRSP 2019b), soft and interpersonal competencies are critical for the inmate's employability after release. Master It consists of a 6-

[3] Basic education consists of the 1st, 2nd, and 3rd school cycle followed by secondary education with mandatory attendance. However, 55 percent of inmates finished the 2nd school cycle or did not have an education.

month hard skill training with Reshape Ceramics. Reshape Ceramics is a social innovation business created by APAC Portugal. It teaches them on-job skills crucial for labor market integration. Even though Portugal's statutes set a comprehensive employment and vocational training program to support social reintegration, the penitentiaries often lack those (Dores, Pontes, and Loureiro 2019). Due to the shortage of jobs, no work obligation, and vocational training merely offered at a few facilities, one-third of the prison population is detained without any meaningful activity. If work or training is available, applicability in real-world settings is limited. Furthermore, withdrawal from training programs is widespread due to the guard's obstructing methods and forcing participants to drop out (Maculan, Ronco, and Vianello 2013; European Prison Observatory 2019). As work experience and training while incarceration are known to promote better employment outcomes after release (Visher, Debus, and Yahner 2008), Reshape Ceramics is critical for integrating and rehabilitating offenders.

The two in-prison phases are followed by Freedom, a 12-month professional and social integration program after release. It includes job support and mentorships. APAC Portugal's network of for-profit and social organizations creates suitable work opportunities for the participants despite their obstacles when returning to the community discussed before.

Overall, the Free Works program is a holistic intervention due to its continuity of service and range of dynamic risk factors of recidivism addressed. Free Works starts before the offender's release, supports his transition to society, and supports the integration for 12 months after release. Moreover, Free Works tackles multiple criminogenic needs of the offender: skill deficits, unemployment, low self-esteem, and social adaption issues (see Figure 2).

The continuous training of soft and hard skills, work experience at Reshape Ceramics, and integration provide participants with the tools necessary to expand their potential, break the vicious cycle of crime, and desist from crime. Thereby, the causes of recidivism instead of the

symptoms (e.g., by expanding already overcrowded prisons) are addressed. As a result, Free Works creates a safer, cohesive society and reduces public costs associated with recidivism.

Figure 2: Program Structure and Impact of Free Works

Phase	Name	Length (in Months)	Contents	Dynamic Risk Factor of Recidivism Tackled by Program			
				Skill Deficits	Unemployment	Self-Esteem	Social Adaption Issues
1.	Ignite	2	Soft and interpersonal skills training	✓			
2.	Master It	6	Hard skills by working at Reshape Ceramics	✓	✓		
3.	Freedom	12	Social and professional integration		✓		
Total		20		✓	✓	✓[1]	✓[1]

1: Result of improved skills and employability; Source: Own figure based on APAC Portugal (2019a) and APAC Portugal (2019b)

5.3 Impact Assessment of Free Works

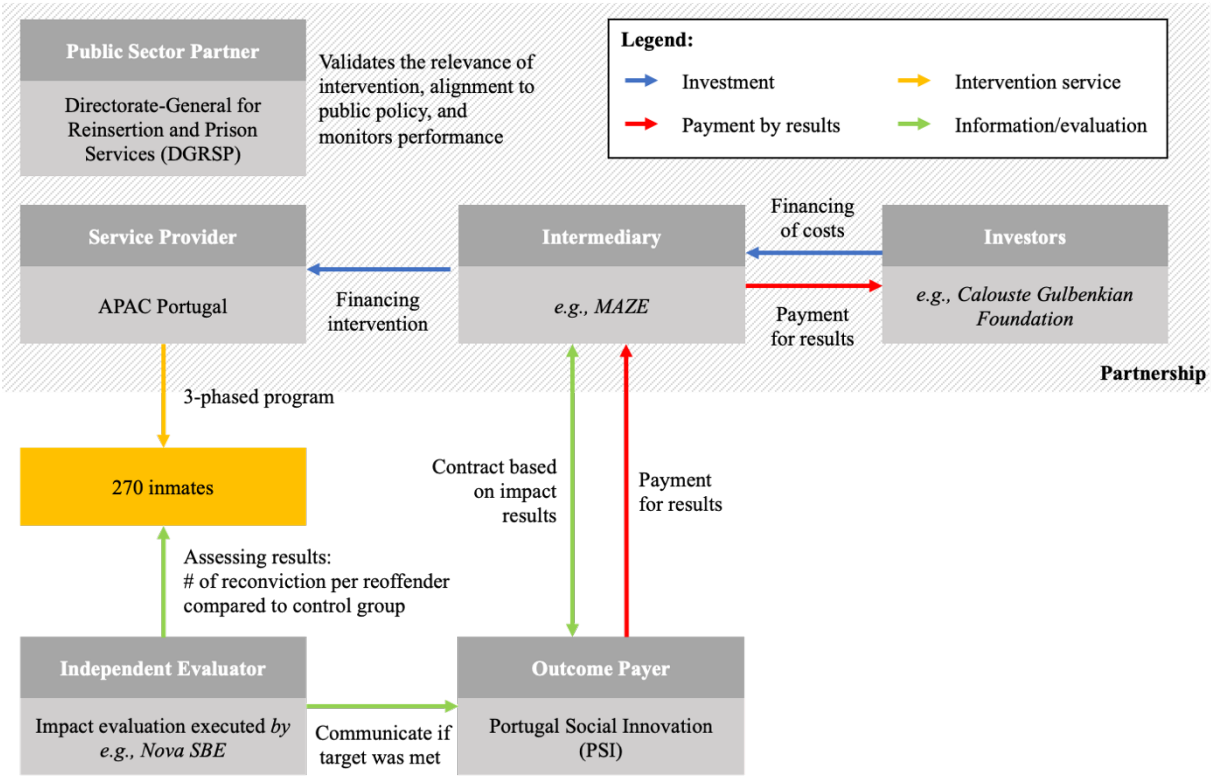
As Free Works is currently in its first year of implementation, an impact assessment is currently not feasible. Therefore, Labora, another employability program from APAC Portugal, will be analyzed. Labora is a non-technical skill program, which includes role-play for job interviews, job search, and CV training. It aims to improve the inmate's employability and motivation to keep a job. Starting in January 2019, Labora had eight participants for ten sessions in the first half of the year. Labora's impact is measured by three components: the attendance rate, participant's evaluation of sessions, and group maturity index. While the attendance rate was 60 percent, the sessions' evaluation was outstanding: 93 percent recommendation rate, 95 percent satisfaction rate, and 90 percent evaluation rate overall. Moreover, the group maturity index measures participants' empathy, helpfulness, openness, ability to deal with different opinions and conflicts. On average, the group maturity index increased by 3.5 points from 2.8 to 6.3 (on a scale from 0 to 10). This represents a 124 percent increase (see Appendix 3). Due

to the programs' similarities regarding methodology, employability, and skill-focus to promote reintegration, Free Work's impact is likely to be comparable to Labora.

6 Structure of Social Impact Bond Adapted to Free Works

The structure of the Free Works SIB is outlined in Figure 3. The investors could also include the Calouste Gulbenkian Foundation, similar to previous SIBs in Portugal (Social Finance 2019). Likewise, MAZE could be the intermediary. Furthermore, DGRSP is the public sector partner for social impact bonds focused on justice and social integration (PSI 2020b). The four parties, namely investors, intermediary, service provider, and public sector partner, form a partnership together monitoring relevance, public policy alignment, and performance. Moreover, the impact evaluation could be done by Nova SBE, similar to the Junior Code Academy SIB established as the first Portuguese SIB (Farinho 2018).

Figure 3: Structure of Free Works SIB



Source: Own figure based on Farinho (2018), PSI (2020b)*, and Social Finance (2019)*

6.1 Target Population

The target population includes male inmates from EP Caxias with a release date of 8 to 14 months[4]. 8 months are necessary to complete the in-prison phases, and the intervention allows for a 6-month buffer to start the phase outside of prison. Moreover, participants should stay in Portugal after their release (e.g., by being Portuguese or having documents permitting their stay), have basic writing and reading skills, and favorably live in Lisbon. Additionally, the inmates' first discharge in the cohort period must be from EP Caxias to avoid including persons released at another prison with a following sentence at EP Caxias (Anders and Dorsett 2017). These criteria ensure that Free Works affects a large, underserved population. More rehabilitation programs focus on female offenders, even though approximately 93.3 percent of all inmates are male (DGRSP 2019b). EP Caxias is one of the highest overpopulated facilities with a 136.7 percent occupancy rate (see Appendix 1). APAC Portugal has a collaborative relationship with EP Caxias, which has space for training and work areas. Furthermore, the third phase can be facilitated quicker and adapted to the conditions in Lisbon.

Furthermore, to limit the service provider's incentive to cherry-pick participants, the target population includes all inmates discharged from EP Caxias meeting the eligibility criteria regardless of their participation in the program. This encourages APAC Portugal to work with inmates most likely to reoffend and thus costly for society, which are otherwise at risk of being excluded from the service due to the focus on outcomes (Disley et al. 2016; Liebman 2011).

6.2 Cohort Delivery Model And Intervention Timeline

The Free Works SIB will include 270 participants divided into three cohorts (consisting of 90 participants). This ensures the impact's statistical significance, which can be clearly attributed

[4] Early release is granted for (1) inmates with less than a six-year sentence after half or two-thirds of the sentence (6 months must be completed) or (2) inmates with a penalty of over six years after five-sixth (US Embassy 2017).

to Free Works. It limits the risk of a false-positive (reduced recidivism due to other reasons) or false-negative result (reduction was achieved but not detected). Additionally, the comparison between cohorts is possible enabling adaption to the inmates' needs. A smaller scale might also not deliver the significant cashable savings required to attract investors (Disley et al. 2011).

Each cohort will go through the three phases: Ignite (2 months), Master It (6 months), and Freedom (12 months). To streamline interventions, the cohorts will overlap with each one starting if the former has two months left in the Master It phase (equal to the length of Ignite). According to the estimated releases at EP Caxias per month (18 persons per month)[5], at least five months are needed to qualify 90 participants for the program. As savings primarily depend on the participant target being fulfilled (outlined in the scenario analysis), a 6-month buffer to get released and start the Freedom phase is included to even out any monthly fluctuations in releases. Additionally, an additional 6-months buffer is provided for courts to process offenses, which will be explained later. Finally, impact evaluation should be finished within a month. As a result, the intervention including buffer will operate for 3.75 years, starting on the 1st of September 2021 (start of school year) and ending on the 31st of May 2025 (see Appendix 4).

6.3 Intervention Costs

The intervention costs are equal to 777,629€ (see Appendix 5). The major cost categories are HR (manager, technical, and administrative), Reshape Ceramics (sale minus inmate's wages), service delivery (training, equipment, and rent), impact assessment (Aidhound and evaluation), and miscellaneous (marketing and operating expenses). Most costs vary based on the phases besides admin., training, equipment, Aidhound, and operating expenses. However, merely 30 percent of costs depends on the participant target being reached (see Appendix 6).

[5] In 2019, the 5,161 releases were equally distributed over 12,793 inmates in Portugal (assumption), EP Caxias was populated by 4.25 percent of all inmates, and thus had 219 releases per year (DGRSP 2019a; 2019b).

6.4 Outcome Metric And Additional Measures

The outcome metric is the reduction in reconviction events within 12 months after the release compared to a control group with Propensity Score Matching (PSM). The minimum reduction required to trigger payment is 7.5 percent across all cohorts, similar to the Peterborough SIB. Likewise, if a cohort reaches a 10 percent reduction, early payments are possible (Anders and Dorsett 2017). This results from the following four rationales: a clear indication of success, little incentive for cherry-picking, reasonable timeline, and credible impact assessment.

Firstly, reconviction is a measure of recidivism. Compared to reoffending, it is relatively easy to measure as the information can be obtained from criminal records or police. It is likely to underestimate the real number of reoffenses (e.g., not reported to police, the suspect is not detected, prosecution or conviction has not taken place). However, the link between reconviction events and society's costs is more vital. As this metric is more straightforward, simpler to measure, and directly linked to costs, it reduces the evaluation's costs (Berlin 2016).

Secondly, the number of reconviction events was chosen instead of a binary reconviction rate to avoid cherry-picking. Thereby, participants with a higher probability of reoffending can significantly influence the outcome metric, which triggers payment (Disley et al. 2016).

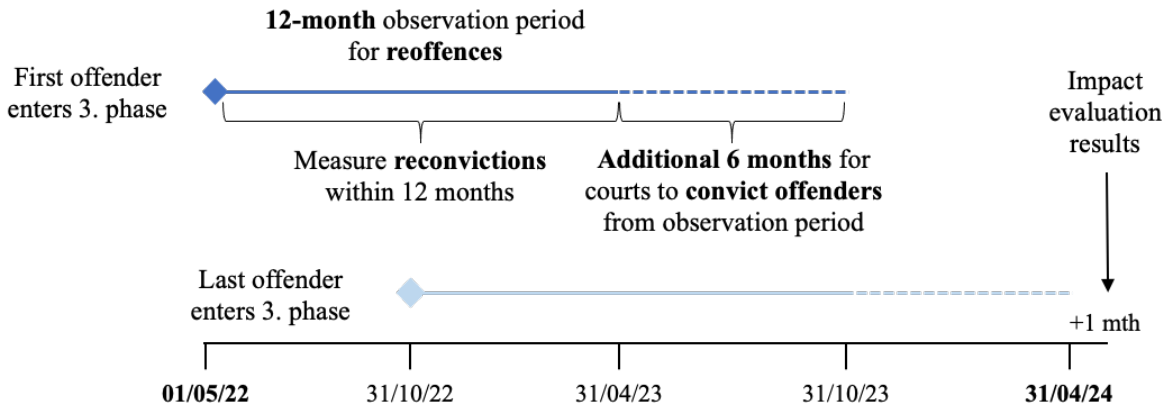
Thirdly, the 12-month observation period was selected as recently released prisoners are a high-risk group for reoffending. In France, 54.5 percent of reconvictions in a five-year period occur during the first year (Jehle and Albrecht 2014). Additionally, a buffer of 6 months for courts to process and convict crimes committed within the 12-months period is included (see Figure 4).

Fourthly, a control group will be used due to the lack of Portuguese data. The control group offers a benchmark case in the intervention's absence (Liebman 2011; Milner and Walsh 2016). Thereby, the program's impact can be analyzed regardless of conditions influencing recidivism including employment, justice system, social security benefits, or housing (Davies 2014).

While many criminal justice SIBs use randomized control groups (Social Finance 2019), Free

Works will use a PSM control group. No interested inmate should be excluded from the service to serve as a control. In the PSM process, each cohort member will be matched with ten inmates from other prisons based on similar characteristics[6] (Anders and Dorsett 2017).

Figure 4: Counting Methodology For Reconviction Events in Cohort 1



Source: Own figure based on Disley et al. (2016), Ministry of Justice UK (2020a)*, and Newton et al. (2019)*

Three other metrics not triggering payment will also be monitored: finding and maintaining employment, wages, and engagement. The collected data can improve the service and measure benefits otherwise missed (Gustafsson-Wright, Gardiner, and Putcha 2015; Berlin 2016):

1. Finding and maintaining employment promotes desistance. Therefore, the binary measure of employment and percentage of time working since release will be recorded, similar to other criminal justice SIBs (Visher, Debus, and Yahner 2008).
2. According to McLaughlin (2016), the lower the wage, the more likely is a person's relapse into criminal behavior. Thus, the pay for the participant's job will be monitored.
3. Following the REACH SIB from the US, the program engagement will be measured, identifying participants' satisfaction with the intervention (Social Finance 2019).

[6] The PSM model includes age, nationality, type and length of offenses, and criminal history, e.g., age at first offense, time since the first offense, and the number of convictions (Anders and Dorsett 2017).

6.5 Payment Structure

Payment to investors depends on the program's impact (7.5 or 10 percent reduction in reconviction events per person estimated to be 3.99), the number of offenders (270 in total), and the unit cost of reconviction for society (approximately 15.725.55€).

As a learning from the Riker Island SIB, societal benefits additional to governmental budget savings are also included in the unit cost of reconviction (Berlin 2016). Therefore, the latter is based on UK reoffenses costs per offense group (includes costs in anticipation, as a consequence and as a response to crime; Newton et al. 2019) and social costs, which are estimated to be ten times higher than incarceration costs (McLaughlin et al. 2016). The unit costs per offense group are adapted to reflect Portuguese levels[7] (see Appendix 7), which are then multiplied with their share of total crimes registered in Portugal (see Appendix 8; DGPJ 2020) to reflect the average cost per reoffense: 15,725.55€.

The program's impact is based on the number of reconvictions per person within 12 months. As Portuguese authorities fail to publish any recidivism data, the UK annual average of 3.99[8] of reconvictions per male adult within 12 months will be assumed (Ministry of Justice UK 2020b). The UK and Portugal's prison system are reasonably alike: a high, rising population rate combined with decreasing resources leading to overcrowding and poor conditions (e.g., limited rehabilitation), and inmate's characteristics such as age, gender, and most common offense types (Silvestri 2013; Maculan, Ronco, and Vianello 2013). Moreover, both countries prioritize rehabilitation in their public policy (Ministry of Justice 2018; Inácio 2019).

As a result, the Free Works SIB's projected surplus is equal to 496,141€ or 920,730 € for a 7.5 or 10 percent reduction in reconviction events for 270 participants (all three cohorts), respectively (see Table 5).

[7] In particular, the correction costs were adapted to reflect comparatively higher costs in Portugal due to the long average length of imprisonment, which is approximately 4.7x higher than in the UK (Council of Europe 2020).
[8] 3.99 is the closest proxy found: it reflects the average number of reoffenses per reoffender within 12 months.

Table 5: Calculation of Savings Potential of Free Works SIB

Savings for Society and Payments to Investors	
Average unit cost for reconvictions (in €)	15,725.55
Average number of reconvictions per ex-convict	3.99
# of reconviction events for 270 participants	
Without intervention	1,078.00
With 7.5% reduction	997.00
Difference	81.00
With 10% reduction	970.00
Difference	108.00
Savings from prevented reconviction events for 270 participants (in €)	
7.5% reduction	1,273,769.37
10% reduction	1,698,359.16
Intervention cost	777,628.68
Project surplus	
7.5% reduction	496,140.69
10% reduction	920,730.47

Source: Own table based on Ministry of Justice UK (2020b) and Newton et al. (2019)

6.6 Public Sector Value

In addition to the net savings calculated above, which also reduce the government's future recidivism costs, there are additional benefits of the Free Works SIB for the public sector:

1. Public safety and confidence in the justice system are improved.
2. Public authority spends less on other rehabilitation programs, which might prove to be ineffective (Liebman 2011).
3. A culture of innovation and experimentation is fostered. For example, other social organizations adopted successful elements from the Peterborough SIB. Additionally, the collected data was used to learn, monitor, and adapt service delivery to all prisoners at the Peterborough prison. As a result, broader and more effective services were implemented (Disley et al. 2011).
4. Reshape Ceramics provides two benefits for the public sector regarding its payment and profit structure. Ten percent of the inmates' salaries are donated to a fund working

with crime victims. Furthermore, 40 percent of Reshape Ceramic's profits fund other rehabilitation programs from APAC Portugal. This results in reduced governmental costs, improved aggregate welfare, and a more cohesive society.

6.7 Investment Structure

Timing and investor capital requirement

The total up-front investor requirements equal 857,335.62€ for the base case with a 7.5 percent reduction in reconviction events. This includes the service delivery costs, intermediary costs, and working capital reserve. The investor requirement is in line with the 723,500€ raised for Coding Bootcamp SIB for only 174 participants (Anselmo and Charro 2020). Due to the streamlined intervention structure, payments are not feasible until the first cohort's evaluation is completed. Furthermore, the payments cannot be recycled in the base case, meaning reinvested into the intervention, as they occur after all three cohorts are finished.

Working capital contingency

A small working capital contingency of three months is included in the financial model to avoid working capital shortages due to unforeseen changes or delays. The capital buffer will be paid back to the investors after the intervention is finished.

Repayment

There are up to three separate payment periods depending on the outcomes of each cohort. Total repayments can vary between 1,322,371.16€ (for a 7.5 percent reduction over all cohorts) to 1,699,398.95€ (for a 10% reduction over all cohorts).

The earliest possible repayment of 498,309.93€ will occur on the 1st of September 2024, providing that the first cohort achieve at least a 10 percent reduction in reconviction events.

The significant lag in time is attributable to five factors:

1. The service delivery without buffers already accounts for approximately 20 months.
2. Based on estimated discharge rates at EP Caxias, six months are required to qualify a sufficient number of inmates (90 per cohort) for the Free Works program.
3. The reconviction events are monitored over the 12 months plus an additional six months for courts to process and convict offenders from the observation period.
4. An independent evaluator needs one month to assess the intervention's outputs.
5. The financial model allows for a two-month delay until revenues become cashable.

It is also important to note that 130% of the investments into SIBs can be recognized as an expense disregarding any future repayments under Law 114/2017 (PSI 2019).

7 Business Case and Scenario Analysis

In the base case, the Free Works SIB achieves a 1.3% IRR with a total repayment of 1,322,371.16€, given the average number of reconvictions is reduced by at least 7.5% over all cohorts. This represents a higher IRR than several SIBs in Portugal, such as Academia de Código Bootcamps, Faz-te Forward, or Projeto Família (Social Finance 2019). However, there are four different, better cases depending on each cohort's reduction of reconvictions: (1) 10% reduction in second cohort, 7.5% in other cohorts, (2) 10% reduction in first cohort, 7.5% in other cohorts, (3) 10% reduction in first two cohorts, 7.5% in last cohort, and (4) 10% reduction over all cohorts. This results in more attractive repayments for investors of up to 1,699,398.95€ with an 11.8% IRR (for 10 percent reduction in all cohorts; see Appendix 9).

To test different assumptions in the financial model, two different scenarios based on the base case of 7.5 percent reconviction reduction are developed in the following.

The first scenario analysis focuses on achieving the participant target. As discussed previously, six months are allocated to recruit enough participants for each cohort. However, this only

relies on estimated release data from EP Caxias. While savings primarily depend on the participant target being fulfilled, only 30 percent of intervention costs depend on the number of inmates participating. As the project surplus, repayment, and IRR rely heavily on fulfilling the participant target (see Table 6), recruiting enough participants per cohort is critical. Given estimated release data at EP Caxias, the 6-month buffer (for inmates to get released and start the Freedom phase) is sufficient to even out fluctuations and thus avoids savings losses.

Table 6: Scenario Analysis Based on Fulfilled Participants Target

Base case: 7.5% reduction of reconviction events over all three cohorts			
Fulfilled participants target	**100,0%**	**90,0%**	**80,0%**
Maximum Contract Value	1.273.769,37	1.146.392,43	1.019.015,49
Buffer to start freedom	6 months	6 months	6 months
Delivery costs	777.628,68	754.608,71	731.588,75
Costs for intermediary	31.105,15	31.105,15	31.105,15
Investor Requirement	857.335,62	834.315,65	811.295,69
Project surplus	496.140,69	391.783,72	287.426,75
IRR of project	**1,3%**	**-0,5%**	**-2,6%**

Source: Own table

The second scenario analysis tests the assumption of a 6-months buffer to start the Freedom phase. The quicker participants start the Freedom phase (and thus do not use the buffer), the quicker the intervention is finished, and cashable savings can be realized (see Table 7).

Table 7: Scenario Analysis Based on Buffer to Start Freedom

Base case: 7.5% reduction of reconviction events over all three cohorts			
Fulfilled participants target	100,0%	100,0%	100,0%
Maximum Contract Value	1.273.769,37	1.273.769,37	1.273.769,37
Buffer to start freedom	**6 months**	**3 months**	**0 months**
Delivery costs	777.628,68	755.016,68	744.804,68
Costs for intermediary	31.105,15	31.105,15	31.105,15
Investor Requirement	857.335,62	834.723,62	824.511,62
Project surplus	496.140,69	518.752,69	528.964,69
IRR of project	**1,3%**	**2,5%**	**3,6%**

Source: Own table

8 Limitations and Recommendations

The Free Works SIB has three main limitations: reconviction only captures a small array of real recidivism, its savings are calculated based on UK data adapted to Portugal, and the proven impact of the intervention program Free Works is limited.

The first limitation is that reconviction events are likely to underestimate actual reoffending rates. However, the real recidivism rate is hard to uncover as the only data source for all repeat offenses, including the dark figure, is the criminal's self-report (Jehle and Albrecht 2014). Furthermore, the reconviction rate is closely linked to society's savings (Disley et al. 2016).

The second limitation is the lack of official information in Portugal. As the savings were estimated on UK data adapted to reflect Portuguese levels, it remains unclear if they reflect the Free Works SIB's actual savings potential. Additionally, the closest measurement found to the number of reconviction events was the number of reoffenses per offender.

Finally, Free Works proven impact is somewhat limited, which is critical for investors. Due to the program's novelty, Labora's impact was assessed. However, the information on Labora was also limited. Therefore, the impact is analyzed for three factors. Furthermore, based on Riker Island SIB learnings, additional impact evaluation should be conducted: e.g., the number of sessions/phases associated with positive outcomes and the number of inmates currently participating the number of sufficient or all sessions/phases (Berlin 2016).

Therefore, there are two main improvement areas, which should be tackled going forward:

1. Obtain or create reliable Portuguese data on recidivism and its costs to estimate savings potential for Free Works SIB credibly. Ideally, the data should be provided, verified, or accepted by the Portuguese public authorities (e.g., DGRSP).
2. Conduct a robust impact assessment of the Free Works program, ensuring investors' and intermediaries' buy-in. The impact evaluation could for example encompass the number of sessions required to reduce participants' reconvictions.

9 Concluding Remarks

Prevention of recidivism and social integration is one of Portugal's priority public policy themes (PSI 2018). However, the Portuguese penitentiary system has limited success in promoting rehabilitation due to overcrowding, lack of financial resources, unfavorable prison conditions, and insufficient access to work and vocational training. The resulting recidivism and hyper-incarceration impose an enormous financial burden on the government.

Addressing the root causes of the social problem, meaning the risk factors of recidivism, through a SIB instead of the symptoms (e.g., building and enlarging prisons) represents an innovative solution promoting public safety, a more cohesive society, and governmental savings. The Free Works program is a holistic intervention tackling multiple criminogenic needs of offenders, namely skill deficits, unemployment, low self-esteem, and social adaption issues. As it focuses on improving their employability, the intervention provides ex-convicts with the means and tools to break the vicious cycle of crime and desist in the long term.

Furthermore, while limiting the service provider's incentive to cherry-pick its target population (with the outcome metric and eligibility criteria), the Free Works SIB also provides repayments to investors of 1,322,371.16€ to 1,699,398.95€ with a 1.3% to 11.8% IRR.

Overall, the Free Works SIB is an attractive financing model for public authorities and investors. If the two main improvement recommendations, reliable Portuguese data on recidivism and strong proven impact of Free Works, are implemented, the Free Works SIB would be feasible. As a result, it would be highly recommended to implement the Free Works SIB in the scope of the recent call for a SIB in Lisbon from PSI.

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11 Appendix

Appendix 1: Population And Occupation Rate Per Prison Facility

Prison Establishments	Total Population	% of inmates of total	Capacity	Occupancy rate (in %)
EP Alcoentre	544	4%	626	86,9
EP Carregueira	748	6%	732	102,2
EP Caxias	544	4%	398	136,7
EP Coimbra	565	4%	540	104,6
EP Funchal	289	2%	324	89,2
Setor Feminino	10	0%	25	40,0
EP Izeda	320	3%	301	106,3
EP Leiria Jovens	182	1%	347	52,4
EP Linhó	424	3%	584	72,6
EP Lisboa	820	6%	887	92,4
EP Monsanto	91	1%	202	45,0
EP Paços de Ferreira	663	5%	548	121,0
EP Pinheiro da Cruz	616	5%	645	95,5
EP Porto	978	8%	686	142,6
EP Santa Cruz do Bispo Feminino	299	2%	352	84,9
EP Santa Cruz do Bispo Masculino	193	2%	220	87,7
Clínica Psiquiátrica e Saúde Mental	164	1%	154	106,5
EP Setúbal	198	2%	162	122,2
EP Sintra	571	4%	767	74,4
EP Tires	421	3%	470	89,6
Setor Masculino	0	0%	163	0,0
EP Vale de Judeus	527	4%	560	94,1
EP Vale do Sousa	373	3%	374	99,7
Hospital Prisional S. João de Deus	64	1%	195	32,8
EP Angra do Heroísmo	257	2%	342	75,1
Setor Feminino	12	0%	8	150,0
Cadeia de apoio da Horta	15	0%	17	88,2
EP Aveiro	120	1%	82	146,3
EP Beja	209	2%	162	129,0
EP Braga	123	1%	91	135,2
EP Bragança	83	1%	58	143,1
EP Caldas da Rainha	95	1%	80	118,8
EP Castelo Branco	148	1%	141	105,0
EP Chaves	71	1%	55	129,1
EP Covilhã	102	1%	101	101,0

EP Elvas	70	1%	53	132,1
EP Évora	31	0%	35	88,6
EP Faro	133	1%	103	129,1
EP Guarda	213	2%	182	117,0
Extensão Mondego	44	0%	82	53,7
EP Guimarães	106	1%	73	145,2
EP Lamego	79	1%	65	121,5
EP Leiria	154	1%	111	138,7
EP Montijo	186	1%	148	125,7
EP Odemira	50	0%	56	89,3
EP Olhão	50	0%	50	100,0
EP PJ Lisboa	134	1%	116	115,5
EP PJ Porto	29	0%	48	60,4
EP Ponta Delgada	145	1%	141	102,8
EP Silves	73	1%	58	125,9
EP Torres Novas	56	0%	38	147,4
EP Viana do Castelo	68	1%	42	161,9
EP Vila Real	91	1%	67	135,8
EP Viseu	83	1%	67	123,9
Total	**12.634**		**12.934**	**97,7**
Non-custodial psychiatric institutions	159	1%		
National Total	**12.793**			

Source: Table adapted from DGRSP (2019b)

Appendix 2: Values of APAC Portugal

Merit
R*ecognition and appreciation of each ones' merit*

Human Valuation
Value and dignity of life promoted through education, professional training and reality therapy

Health and Legal Assistance
Guaranteed health care and legal advice

Job/Work
Should promote personal fulfilment

Couple Support
Experience of community and responsibility for others

Spirituality
Practice of a religion

Community and Volunteering
Regular contact of the local community

Family
Support the families

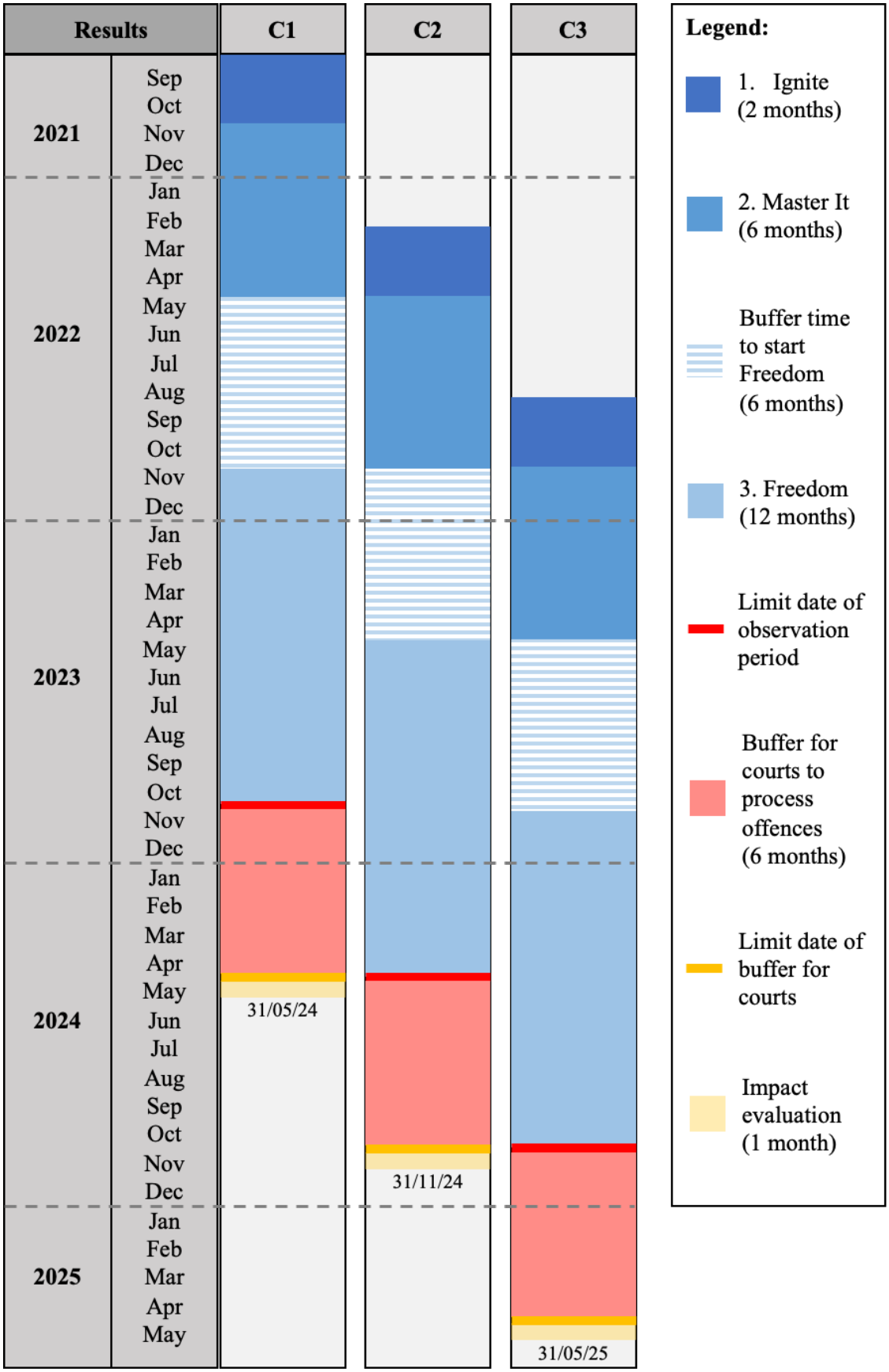
Source: Own figure based on APAC Portugal (2019a; 2019b)

Appendix 3: Group Maturity Index of Labora

Category	Beginning evaluation	Ending evaluation	Increase (absolute numbers)	Increase (in %)
What level of knowledge to the group members have of each other?	4,0	8,0	4,0	100%
What the level of empathy in the group?	3,0	8,0	5,0	167%
What the level of mutual help in the group?	2,0	6,0	4,0	200%
How open/comfortable are group members to share personal stories?	3,0	7,0	4,0	133%
Are group members able to deal with disparate opinions in the group?	5,0	7,0	2,0	40%
Do conflicts exists within in the group?	0,0	2,0	2,0	200%
Average	**2,8**	**6,3**	**3,5**	**124%**

On the scale of 0-10 (very weak to very high performance); Source: Own table based on APAC Portugal (2019a; 2019b)

Appendix 4: Intervention Timeline



Source: Own figure

Appendix 5: Intervention Costs per Year (in €)

	2021	2022	2023	2024	2025
HR					
Project Manager	18.160	54.480	38.590	22.700	-
Technical	19.800	112.200	118.800	46.200	-
Administrative/Accounting	5.192	15.576	15.576	12.980	-
Total Costs	43.152	182.256	172.966	81.880	-
Reshape Ceramics					
Sale	59.194	355.162	118.387	-	-
Wage Costs	76.500	459.000	153.000	-	-
Total Costs	17.306	103.838	34.613	-	-
Service delivery					
Seminars and Training	10.125	10.125	10.125	-	-
Movable equipment	14.175	-	-	-	-
Rents and amortizations	800	7.200	9.600	8.000	-
Total Costs	25.100	17.325	19.725	8.000	-
Tracking/Impact					
Aidhound	2.500	2.500	2.500	2.500	-
Impact evaluation	-	-	-	20.000	10.000
Total Costs	2.500	2.500	2.500	22.500	10.000
Miscellaneous					
Marketing for project	2.600	6.000	2.400	2.000	-
Current operating expenses	1.944	5.832	5.832	4.860	-
Total Costs	4.544	11.832	8.232	6.860	-
TOTAL	**92.602**	**317.751**	**238.036**	**119.240**	**10.000**

Source: Own table

Appendix 6: Cost Structure (in €)

	Cost structure	Costs for 2021-2025	Share of total costs
HR			
Project Manager	Fixed	133.930	17%
Technical	Fixed	297.000	38%
Administrative/Accounting	Fixed	49.324	6%
Total Costs		480.254	62%
Reshape Ceramics			
Sale	Variable	532.743	
Wage Costs	Variable	688.500	
Total Costs		155.757	20%
Service delivery			
Seminars and trainings	Variable	30.375	4%
Movable equipment	Fixed	14.175	2%
Rents and amortizations	Variable	25.600	3%
Total Costs		70.150	9%
Tracking/Impact assessment			
Aidhound	Fixed	10.000	1%
Impact evaluation	Fixed	30.000	4%
Total Costs		40.000	5%
Miscellaneous			
Marketing for project	Fixed	13.000	2%
Current operating expenses	Variable	18.468	2%
Total Costs		31.468	4%

Source: Own table

Appendix 7: Unit Costs of Reoffenses by Offense Group And Cost Category Adapted to Reflect Portuguese levels (2017/18 prices, in €)[1]

Offense group	Costs in anticipation of crime[2]	Costs as a consequence of crime[2]	Costs in response to crime		Social costs[4]	Total cost
			Correction costs[3]	Total		
Robbery	454,28	7.495,61	2.132,14	9.303,98	21.321,37	38.575,24
Violence against the person	340,71	9.312,73	1.859,93	4.177,30	18.599,32	32.430,05
Sexual offenses	227,14	9.085,59	72,82	3.417,79	728,16	13.458,68
Theft offenses	1.022,13	2.271,40	87,08	1.708,89	870,77	5.873,20
Miscellaneous crimes against society	794,99	-	841,98	5.126,68	8.419,77	14.341,44
Criminal damage and arson	113,57	1.022,13	222,45	1.139,26	2.224,47	4.499,43
Fraud offenses	227,14	1.022,13	16,51	379,75	165,11	1.794,13
Public order offenses	113,57	567,85	155,92	949,39	1.559,22	3.190,02
Drug offenses	-	340,71	249,47	1.519,02	2.494,75	4.354,47
Summary non-motoring	-	-	218,29	1.329,14	2.182,90	3.512,04
Possession of weapons offenses	-	-	187,11	1.139,26	1.871,06	3.010,32
Summary motoring	-	-	62,37	379,75	623,69	1.003,44

1: Exchange rate £ to € (2017-2018): 1,1356990 (OFX 2020)

2: Costs in anticipation of crime, costs as a consequence of crime and costs in response to crime besides correction costs can be transferred from UK to Portugal

3: Correction costs were adapted to higher correction costs in Portugal due to the long average length of imprisonment: approximately 4.7x higher than in the UK (Council of Europe 2020)

4: For every dollar in corrections costs, incarceration generates an additional ten dollars in social costs (McLaughlin et al. 2016)

Source: Own table based on Newton et al. (2019)

Appendix 8: Crime Registered by Law Enforcement by Offense Group (2018)

Offense group	# of offenses recorded	Share of total offenses
Robbery	45.481	14%
Violence against the person	78.657	23%
Sexual offenses	2.621	1%
Theft offenses	77.835	23%
Miscellaneous crimes against society	12.615	4%
Criminal damage and arson	22.967	7%
Fraud offenses	38.879	12%
Public order offenses	6.468	2%
Drug offenses	8.466	3%
Summary non-motoring	1.315	0%
Possession of weapons offenses	11.522	3%
Summary motoring	28.767	9%
Total	**335.593**	**100%**

Source: Own table based on DGPJ (2020)

Appendix 9: Scenario Analysis Based on Reduction in Reconviction Events

Reduction of average # of reconviction events	**7.5% over all three cohorts**
Fulfilled participants target	100%
Maximum Contract Value	1.273.769,37
Buffer to start freedom	6 months
Delivery costs	777.628,68
Costs for intermediary	31.105,15
Investor Requirement	857.335,62
Project surplus	496.140,69
IRR of project	**1,3%**

Reduction of average # of reconviction events	**10% in 2nd cohort, 7.5% in others**	**10% in 1st cohort, 7.5% in others**
Fulfilled participants target	100%	100%
Maximum Contract Value	1.415.299,30	1.415.299,30
Buffer to start freedom	6 months	6 months
Delivery costs	777.628,68	777.628,68
Costs for intermediary	31.105,15	31.105,15
Investor Requirement	847.335,62	809.773,62
Project surplus	637.670,62	637.670,62
IRR of project	**4,6%**	**5,9%**

Reduction of average # of reconviction events	**10% in first two cohorts, 7.5% in last**	**10% over all three cohorts**
Fulfilled participants target	100%	100%
Maximum Contract Value	1.556.829,23	1.698.359,16
Buffer to start freedom	6 months	6 months
Delivery costs	777.628,68	777.628,68
Costs for intermediary	31.105,15	31.105,15
Investor Requirement	809.773,62	809.773,62
Project surplus	779.200,54	920.730,47
IRR of project	**9,3%**	**11,8%**

Source: Own table